REMARKS

This Amendment is responsive to the Office Action dated March 23, 2007.

Claims 1, 3-8 and 9 have been rejected under 35 USC 102(e) as anticipated by Stettner, et al. (U.S. Pat. No. 6,414,746). Claims 2, 10 and 12 have been rejected under 35 USC 103(a) as unpatentable over Stettner in view of Cronin (U.S. Pat. No. 5,925,924). Claims 8 and 11 have been rejected under 35 USC 103(a) as unpatentable over Stettner in view of Halmos (U.S. Pat. No 6,522,396).

Claim 12 has been cancelled such that claims 1-11 are pending. Reconsideration and further examination of the application is respectfully requested.

Applicant has carefully reviewed the cited references and amended independent Claim 1. Dependent claims 2 and 10 have been amended to include limitations not shown in the cited references. Claims 2-11 depend from Claim 1 such that it is believed the pending claims are patently distinguishable and allowable at least for the reasons set forth below.

Independent Claim 1 has been amended to clarify that the detector array of the invention is bonded to a lateral surface of the stacked module comprised of readout electronics integrated circuit chips. In this manner, the photon detector array is arranged and disposed perpendicularly to the stacked configuration. This arrangement reduces the overall size of the photon detector module and minimizes signal lead lengths between the individual detector pixels on the array and the signal processing channels in the readout electronics integrated circuit chips. This arrangement is neither disclosed nor suggested by the references applied in the Office Action, either individually or in combination.

As best understood, Stettner discloses a hybrid of a detector array chip bonded face-to-face in connection with a processing-electronics unit cell chip. Indeed, Figure 2 of Stettner discloses detector array chip 6 bonded face-to-face in a parallel configuration with laser processor chip 8 using conductive bumps and requires a wirebond to electrically connect the hybrid sensor 3 to drive and output electronics 4 and multiplexing and chip output amplifier 12 (Stettner, et al., col.3, lines 55-64).

The wirebond interconnect and its associated parasitic impedance problems is avoided and is not present in the amended claims, each of which take advantage of the

claimed configuration to provide short signal paths necessary for very high speed (GHz clock rate) signal processing, owing to the perpendicular disposition of the detector array relative to the integrated circuits in the stacked module. Wiredbonds are known to behave as inductors at high speeds, which characteristic is undesirable in high speed LADAR applications. Additionally, multiple individual channels of high density signal processing circuitry on each layer in the module are available to each pixel on the array when the detector array is bonded perpendicularly to the stacked ICs.

Nothing in Stettner is understood to describe, teach or suggest the elements of bonding the detector array in a perpendicular arrangement on a lateral surface of the stacked read out electronics integrated circuit chip stack to minimize signal length and to connect the individual pixel outputs of the array to dedicated signal processing channels within the stack. Rather, Stettner specifically teaches a face-to-face parallel configuration of the detector array with respect to the processing electronics integrated circuit chip.

With respect to claims 2-11, none of the cited references, singularly or in combination, teach or suggest the perpendicular configuration of the detector array and module, nor contain any motivation to combine the elements of the dependent claims.

Neither of the two references applied to certain dependent claims in combination with Stettner, namely Halmos and Cronin, are understood to teach or disclose at least the feature of bonding the detector array to a lateral surface of a stack of read out electronics integrated circuit chips to provide dedicated signal processing electronics for each pixel output while minimizing signal lead lengths.

Claims 2-11 depend from amended Claim 1 and are believed allowable for the reasons set forth above. Note claims 2 and 10 have been amended to further clarify the perpendicular configuration of the detector on a lateral surface of the stack.

Based on the above amendments and accompanying remarks, Applicant respectfully submits that all pending claims, as amended, are in condition for allowance and earnestly solicits notice thereof.

Formal drawings, each identified as REPLACMENT SHEET, are submitted herewith. No new matter is included in the submitted formal drawings.

The Examiner is encouraged to telephone the undersigned attorney if it appears that a telephone conference would facilitate the allowance of the application.

Respectfully submitted,

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I certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

By: W. Eric Boyd

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